Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Presently presented)   An image pickup system comprising:

a noise estimator for estimating an amount of noise contained in a digitized signal from an image pickup element composed of an array of a plurality of pixels, either for each pixel or for each specified unit area comprising a plurality of pixels;

a shooting condition estimator for estimating a shooting condition when an image based on said signal is acquired;

a correction unit for correcting the amount of noise estimated by the noise estimator based on the shooting condition estimated by the shooting condition estimator; and

noise reducing unit for reducing the noise in the signal based on the amount of noise corrected by the correction unit.

2.   (Presently presented)   The image pickup system according to claim 1, further comprising:

color filters arranged on a front surface of the image pickup element; and

a separating unit for separating the signal that is output from the image pickup element into signals for each color filter.

3.   (Presently presented)   The image pickup system according to claim

2, wherein the noise estimator comprises:

        a parameter calculator for calculating parameters based on at least one type of information selected from among a signal value level of the signal, a temperature of the image pickup element, a gain for the signal, and a shutter speed during shooting; and

        a noise amount calculator for calculating the amount of noise based on the parameters calculated by the parameter calculator.

    4.   (Currently amended)   The image pickup system according to claim 2, wherein the shooting condition estimator comprises ~~at least one of~~ an overall estimator for estimating the shooting condition for an overall signal when an image based on the signal is acquired[[,]] ~~and a regional estimator for estimating the shooting condition for each region when an image based on the signal is acquired~~.

    5.   (Presently presented)   The image pickup system according to claim 2, wherein the shooting condition estimator has an overall estimator for estimating the shooting condition for an overall signal when an image base on the signal is acquired, based on at least one type of information selected from among focus information, exposure information, zoom position information, eye sensing information and strobe light emission information.

    6.   (Presently presented)   The image pickup system according to claim 2, wherein the shooting condition estimator comprises:

        a focusing position estimator for estimating, based on focus information, to which shooting a focusing position belongs among three or more types of shooting at least including scenery shooting, portrait shooting and close-up shooting;

a shooting-subject distribution estimator for estimating, based on exposure information, to which shooting the shooting-subject distribution belongs among three or more types of shooting including at least an overall signal, central emphasis or central portion; and

an overall estimator for estimating the shooting situation relating to an overall signal when an image based on the signal is acquired, by combining the focusing position estimated by the focusing position estimator and the shooting-subject distribution estimated by the shooting-subject distribution estimator.

7.   (Presently presented)   The image pickup system according to claim 2, wherein the shooting condition estimator comprises an overall estimator for estimating and judging, based on exposure information, whether or not the shooting condition relating to an overall signal when an image based on the signal is acquired is of night view shooting.

8.   (Withdrawn)   The image pickup system according to claim 2, wherein the shooting condition estimating means comprises:

image characteristic detection means for detecting, based on the signal, characteristics of the image based on the signal; and

regional estimating means for estimating the shooting condition of respective regions when an image based on the signal is acquired, based on the image characteristics detected by the image characteristic detection means.

9.   (Withdrawn)   The image pickup system according to claim 8, wherein the image characteristic detection means comprises at least one type of means selected from among specific color detection means for detecting specific color regions as image characteristics from the signal, specific brightness detection means

for detecting specific brightness regions as image characteristics from the signal, and frequency detection means for determining frequency information in local regions of a specified size as image characteristics from the signal.

10. (Withdrawn)   The image pickup system according to claim 8, wherein the image status estimating means further comprises down sampling means for down sampling the signal, and the image characteristic detection means detects the image characteristics of the image based on the signal down sampled by the down sampling means.

11. (Presently presented)   The image pickup system according to claim 2, wherein the noise reducing unit comprises:

threshold value setting unit for setting an amplitude value of the noise as a threshold value based on the amount of noise corrected by the correction unit, for one of each pixel, and each specified unit area comprising a plurality of pixels; and

a smoothing unit for reducing amplitude components in the signal that are equal to or less than the threshold value set by the threshold value setting unit.

12. (Presently presented)   The image pickup system according to claim 3, wherein the noise amount calculator comprises means that calculates an amount of noise N using a signal value level L of the signal, a temperature T of the image pickup element, a gain G for the signal and a shutter speed S during shooting as parameters, and comprises:

a coefficient calculator for calculating four coefficients A, B, C and D based on three functions $a(T, G)$, $b(T, G)$ and $c(T, G)$ using the temperature T and gain G as parameters, and a function $d(S)$ using the shutter speed S as a parameter;

and

a function calculator for calculating the amount of noise N where:

$$N = (AL^B + C)D$$

defined by the four coefficients A, B, C and D calculated by the coefficient calculator.

13. (Presently presented) The image pickup system according to claim 12, wherein the noise amount calculator further comprises an assigning unit for assigning standard parameter values, and the parameters are one of values calculated by the parameter calculator, and standard values assigned by the assigning unit.

14. (Withdrawn) The image pickup system according to claim 3, wherein the noise amount calculating means comprises:

assigning means for assigning standard values as standard parameter values for parameters not obtained from the parameter calculating means; and

look-up table means for determining the amount of noise by inputting the signal value level, temperature, gain and shutter speed obtained from one of the parameter calculating means and the assigning means.

15. (Presently presented) The image pickup system according to claim 1, wherein the noise estimator comprises:

a parameter calculator for calculating parameters based on at least one type of information selected from among a signal value level of the signal, a temperature of the image pickup element, a gain for the signal and a shutter speed during shooting; and

a noise amount calculator for calculating the amount of noise based on the parameters calculated by the parameter calculator.

16.   (Currently amended)   The image pickup system according to claim 1, wherein the shooting condition estimator comprises ~~at least one of~~ an overall estimator for estimating the shooting condition for an overall signal when an image based on the signal is acquired[[,]] ~~and a regional estimator for estimating the shooting situation for each region when an image based on the signal is acquired~~.

17.   (Presently presented)   The image pickup system according to claim 1, wherein the shooting condition estimator has an overall estimator for estimating the shooting condition for an overall signal when an image base on the signal is acquired, based on at least one type of information selected from among focus information, exposure information, zoom position information, eye sensing information and strobe light emission information.

18.   (Presently presented)   The image pickup system according to claim 1, wherein the shooting condition estimator comprises:

a focusing position estimator for estimating, based on a focus information, to which shooting the focusing position belongs among three or more types of shooting including at least scenery shooting, portrait shooting and close-up shooting;

a shooting-subject distribution estimator for estimating, based on exposure information, to which shooting the shooting-subject distribution belongs from among three or more types of imaging including at least an overall signal, central emphasis or central portion; and

an overall estimator for estimating the shooting situation relating to the overall signal when an image based on the signal is acquired, by combining the focusing position estimated by the focusing position estimator and the shooting-

subject distribution estimated by the shooting-subject distribution estimator.

19.   (Presently presented)   The image pickup system according to claim 1, wherein the shooting condition estimator comprises an overall estimator for estimating and judging, based on exposure information, whether or not the shooting condition relating to an overall signal when an image based on the signal is acquired is night view shooting.

20.   (Withdrawn)   The image pickup system according to claim 1, wherein the shooting condition estimating means comprises:

image characteristic detection means for detecting, based on the signal, characteristics of the image based on the signal; and

regional estimating means for estimating the shooting situation of respective regions when an image based on the signal is acquired, based on the image characteristics detected by the image characteristic detection means.

21.   (Withdrawn)   The image pickup system according to claim 20, wherein the image characteristic detection means comprises at least one type of means selected from among specific color detection means for detecting specific color regions as image characteristics from the signal, specific brightness detection means for detecting specific brightness regions as image characteristics from the signal, and frequency detection means for determining frequency information in local regions of a specified size as image characteristics from the signal.

22.   (Withdrawn)   The image pickup system according to claim 20, wherein the image status estimating means further comprises down sampling means for down sampling the signal, and the image characteristic detection means

detects the image characteristics of the image based on the signal down sampled by the down sampling means.

23.   (Presently presented)   The image pickup system according to claim 1, wherein the noise reducing unit comprises:

a threshold value setting unit for setting an amplitude value of the noise as a threshold value based on an amount of noise corrected by the correction unit, for one of each pixel, and for each specified unit area comprising a plurality of pixels; and

a smoother for reducing amplitude components in the signal that are equal to or less than the threshold value set by the threshold value setting unit.

24.   (Presently presented)   The image pickup system according to claim 15, wherein the noise amount calculator is configured to calculate the amount of noise N using the signal value level L of the signal, the temperature T of the image pickup element, the gain G for the signal and the shutter speed S during shooting as parameters, and comprise:

a coefficient calculator for calculating four coefficients A, B, C and D based on three functions a(T, G), b(T, G) and c(T, G) using the temperature T and gain G as parameters, and a function d(S) using the shutter speed S as a parameter; and

a function calculator for calculating the amount of noise N where:

$$N = (AL^B + C)D$$

defined by the four coefficients A, B, C and D calculated by the coefficient calculator.

25.   (Presently presented)   The image pickup system according to claim 24, wherein the noise amount calculator further comprises an assigning unit for

assigning standard parameter values, and the parameters are values calculated by one of the parameter calculator, and standard values assigned by the assigning unit.

26. (Withdrawn) The image pickup system according to claim 15, wherein the noise amount calculating means comprises:

assigning means for assigning standard values as standard parameter values for parameters not obtained from the parameter calculating means; and

look-up table means for determining the amount of noise by inputting the signal value level, temperature, gain and shutter speed obtained from one of the parameter calculating means and the assigning means.

27. (Presently presented) An image processing program stored in a computer readable medium executed by a computer, comprising:

a noise estimating routine for estimating the amount of noise contained in digitized signals from an image pickup element composed of an array of a plurality of pixels, for one of each pixel and for each specified unit area comprising a plurality of pixels;

a shooting condition estimating routine for estimating a shooting condition when an image based on the signal is acquired;

a correction routine for correcting an amount of noise estimated by the noise estimating routine based on the shooting condition estimated by the shooting condition estimating routine; and

a noise reducing routine for reducing the noise in the signal based on an amount of noise corrected by the correction routine.